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Different traumatic experiences are associated with different pathologies

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DIFFERENT TRAUMATIC EXPERIENCES ARE ASSOCIATED WITH DIFFERENT PATHOLOGIES

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We tested the hypothesis that different traumatic experiences will contribute in variable degree to different mental pathologies. A total of 223 young adult non-patients were assessed with the help of self-reports. The role of six different trauma experiences (broken home, dysfunctional family, family violence, child sexual abuse, child severe sexual abuse and adult sexual abuse) in six different conditions/pathologies (alexithymia, depression, somatization, borderline, overall physical health and overall mental health) was tested in a series of multivariate analyses of variance and of Roy-Bargmann stepdown analyses. The hypothesis was confirmed: Individual traumatic experiences were indeed associated with different pathologies. Specifically, sexual abuse predicted borderline pathology, severe child sexual abuse somatization, and dysfunctional or broken family depression. Family violence was associated with worse overall mental health and alexithymia, whereas no trauma variable could be identified to be associated with overall physical health. Most of these individual relationships were reported in the literature, based on results obtained in different clinical

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samples. Our results were won in a sample of young non-patients controlling for overlap between pathologies.

KEY WORDS: broken home; dysfunctional family; sexual abuse; alexithymia; depression; somatization; borderline.

INTRODUCTION

A conceptual shift is taking place in contemporary psychiatry from neurotic to reactive disorders, from intrapsychic conflict to external trauma. In this context, trauma events such as childhood abuse in general and childhood sexual abuse in particular have been associated with a range of different psychiatric conditions and disorders. It has been claimed that trauma may give rise to alexithymia (1), and childhood abuse and alexithymia were found to be associated with each other (2,3). Individuals with a history of childhood abuse were found to be at greater risk of becoming depressed (4,5). Similarly, the relationship of childhood sexual and physical abuse with functional symptoms, unexplained physical symptoms, somatization and somatization disorders has repeatedly been demonstrated (6–8) and higher rates of childhood abuse were reported in patients with borderline pathology (9,10). History of trauma in general and of abuse in particular was associated with a broad range of health problems (11–13), especially with functional disorders and pain (14–16) and with impairment in health-related quality of life (17).

Thus, traumatic etiology has been implicated—among others—in alexithymia, depression, somatization, borderline pathology and suboptimal general health. The results have been obtained studying a wide range of samples such as non-patients (4,5,7), primary care patients (11,17), psychiatric outpatients (2) and inpatients (9,10) and medical outpatients (15) and inpatients (14). Obviously, there is an interdependence between the choice of the sample and the subject of the study. In most of the studies only one of the pathological conditions has been considered and only a narrow range of possible traumatic events examined, mostly restricted to childhood sexual abuse. The aim of the present study was to broaden this perspective. We included all these conditions and tested several different traumatic experiences (broken home, dysfunctional family, family violence, child sexual and child severe sexual abuse, and adult sexual abuse) as their possible antecedents. Our hypothesis was that different traumatic experiences will contribute in variable extent to different pathologies. Due to our topic, acute stress

disorder and posttraumatic stress disorder, in every case related to trauma by definition, were not considered.

METHODS

Participants

The study was carried out on young adult voluntary non-patients. Two subsamples were included: fourth-year medical students and members of nursing staff of a district general hospital. First, both groups were directly approached, following a lecture and staff-meetings respectively. They were thoroughly informed, and their cooperation was requested. Second, they were provided with comprehensive written information along with the questionnaires described below. They were asked to complete the questionnaires at home and to return them anonymously. They were also asked to disclose their sex, age, marital status and parents' occupation—the last to determine social class of origin. Out of 247 registered students and 148 members of nursing staff—all of them provided with the written material—139 (56%) and 84 (57%) respectively returned the questionnaires and were included in the study. Only exceptionally incomplete questionnaires were sent back; thus, e.g., social class determination was not indicated by three participants. Table 1 includes basic sociodemographic data of both groups of study participants.

Instruments

20-Item Toronto Alexithymia Scale (TAS-20) is a 20-item self-report scale. Each item is rated on a 6-point Likert scale ranging from strongly disagree to strongly agree. The TAS-20 demonstrated good internal consistency (Cronbach's $\alpha = .81$) and test-retest reliability over a three-week interval ($r = .77$). Concurrent validity of the scale was confirmed (18). German version of TAS-20 has satisfactory psychometric properties (19).

Depression Scale (DEPS) is a self-report screening scale for depression in primary care settings and consists of 10 items, each of them being rated on a 4-point scale ranging from not at all to extremely. The DEPS demonstrated good internal consistency (Cronbach's $\alpha = .88$) and concurrent validity—it correlated with 17-item Hamilton Depression Scale (20) with $r = 0.60$, $p < .0001$ (21).

TABLE 1
Basic Sociodemographic Characteristics, Average Pathologies Scores, and Frequency of Trauma Experiences in Two Groups of Study Participants

	Total <i>n</i> = 223 (100)	Medical students <i>n</i> = 139 (100)	Nursing personnel <i>n</i> = 84 (100)	Significance	
				χ^2	<i>df</i> <i>p</i>
Sex: females	150 (67)	72 (52)	78 (93)	38.24	1 .0001
Age [years]: MN \pm SD	28 \pm 7	25 \pm 2	31 \pm 10	13.74	1 .0002
Marital status: single	194 (87)	133 (96)	61 (73)	22.62	1 .0001
Higher social class	122 (55)	95 (69)	27 (33)	26.88	1 .0001
Alexithymia score: MN \pm SD	40 \pm 10	39 \pm 11	40 \pm 10		NS
Depression score: MN \pm SD	5.2 \pm 5.3	5.5 \pm 5.7	4.7 \pm 4.7		NS
Somatization score: MN \pm SD	3.8 \pm 4.4	3.4 \pm 4.7	4.5 \pm 3.8	8.24	1 .004
Borderline score: MN \pm SD	3.2 \pm 2.1	3.2 \pm 2.1	3.3 \pm 2.1		NS
Physical health summary score: MN \pm SD	56 \pm 4	57 \pm 4	55 \pm 5	5.81	1 .016
Mental health summary score: MN \pm SD	51 \pm 9	51 \pm 10	52 \pm 8		NS
Broken home	81 (36)	46 (33)	35 (42)		NS
Dysfunctional family	28 (13)	16 (12)	12 (14)		NS
Family violence	18 (8)	10 (7)	8 (10)		NS
Child sexual abuse	25 (11)	16 (12)	9 (11)		NS
Child severe sexual abuse	11 (5)	8 (6)	3 (4)		NS
Adult sexual abuse	29 (13)	12 (9)	17 (20)	5.25	1 .022

Note. Percentages are given in parentheses.

Somatization Symptoms Self-Report (SS) contains all 35 somatization disorder symptoms (gastrointestinal, pain, cardiopulmonary, conversion or pseudoneurologic, sexual and female reproductive) and 6 further diagnostic criteria (including exclusion of a relevant organic pathology), indicated in a more precise way by DSM-III-R (22, official German translation 23) than by other DSM versions. A self-report format of the instrument was chosen and all items were answered with yes or no answers.

Borderline Pathology Questionnaire (BP) represents a borderline section of the Structured Clinical Interview for DSM-IV Axis I Personality Questionnaire SCID-II-PQ, originally devised by Spitzer et al (24), in the official German version of Wittchen et al (25). SCID-II-PQ is a face valid self-administered questionnaire which closely adheres to DSM item formulations. The scales are relatively stable over time (median 2–3 months test-retest correlation was .69) and their stability was not affected by the state of depression (26).

36-Item Short-Form Health Survey (SF-36) is a brief, intensively tested multidimensional instrument (27,28), devised to quantify the subjective assessment of individual's health state and life quality. It contains 8 subscales composed of different number of items. German SF-36 version demonstrated satisfactory psychometric properties (29). Two aggregate summary measures—physical summary scale and mental summary scale—have been constructed with internal consistency reliability coefficients of .92 and .91 respectively (30). Higher scales values indicate better health state.

Trauma questionnaire is based on the Structured Interview for Trauma Study devised by Herman and van der Kolk (31). We chose the Interview even though it had not been psychometrically formally tested because of its face validity and feasibility with regard to its transformation in a self-administered questionnaire. Self-report format of the questionnaire was necessary to comply with the overall design of our study. The answers were summarized to give information on six different traumatic experiences, all of them operationally defined: broken home before age of 18; dysfunctional family of origin (defined by unclear/inconsequent communication pattern and dysfunctional coping); family violence (defined by parental physical fights and/or medical interventions due to family violence); child sexual abuse (defined as sexual contact before age of 16 excluding partners explicitly designated as lover); child severe sexual abuse (child sexual abuse including penetration and/or violence and/or multiple perpetrators); and adult sexual abuse after age of 16.

Statistics

Total scores were calculated for alexithymia, depression, somatization, borderline pathology and measures of health survey, all these variables having been considered as dimensional variables. Comparisons between groups were carried out using χ^2 -test with continuity correction for categorical and Kruskal Wallis (χ^2 -approximation) test for continuous variables. In the next step, the relationships between the six trauma experiences (broken home, dysfunctional family, family violence, child sexual abuse, child severe sexual abuse, and adult sexual abuse—all of them representing independent categorical variables) and alexithymia, depression, somatization, borderline pathology, physical health and mental health (representing dependent dimensional variables) were investigated. As the most dependent variables were intercorrelated (Table 2) a series of six multivariate analyses of variance was performed. Using the SPSS MANOVA procedure, we tested separately for each independent variable whether the differences between group means of dependent variables occurred by chance or not (32). The evaluation of the assumptions of normality, homogeneity of variance-covariance matrices, linearity, and multicollinearity revealed no deviations. To explore the specific relationships between the independent and individual dependent variables, Roy-Bargmann step-down analyses were run, that reveal the significance of each dependent variable, simultaneously controlling for adequate adjustment of type I error rate by combining ANOVA and ANCOVA tests (33,34).

TABLE 2
Correlation Matrix of the Dependent Variables/Individual Pathologies

	<i>Alexithymia</i>	<i>Depression</i>	<i>Somatization</i>	<i>Borderline</i>	<i>Physical health</i>	<i>Mental health</i>
Alexithymia	1.0					
Depression	.31***	1.0				
Somatization	.20**	.25***	1.0			
Borderline	.42***	.48***	.31***	1.0		
Physical health	-.09	-.04	-.25***	.02	1.0	
Mental health	-.32***	-.58***	-.17*	-.42***	-.29***	1.0

Note. Indicated are Pearson correlation coefficients.

* $p < .05$; ** $p < .01$; *** $p < .001$.

RESULTS

Table 1 indicates the average scores of different pathologies and the frequency of individual trauma experiences in the whole sample and compares the subgroups of medical students and nursing personnel with each other. Both samples differed on demographic measures. Also, nursing personnel scored significantly higher on somatization, presented a worse physical health and reported a higher frequency of adult sexual abuse. However, no other differences were found. Therefore, the data of all probands were lumped together to study the possible effect of trauma variables. Incidentally, the differences between the subgroups seem to be explained by differences in sex distribution: Female participants, overrepresented among the nursing personnel, scored higher on somatization (4.2 ± 3.8 vs 2.9 ± 5.3 ; $\chi^2 = 14.64$, $df = 1$, $p < .0001$) and indicated a more frequent adult sexual abuse (17% vs 5%; $\chi^2 = 4.49$, $df = 1$, $p = .034$). No further gender differences were obtained.

As Table 2 indicates, significant intercorrelations have been found between scores for alexithymia, depression, somatization, borderline pathology and mental (but not physical) health. Incidentally, some of the traumatic experiences were also intercorrelated, even though less so than the pathologies. Dysfunctional family was correlated with sexual abuse and broken home; the highest Spearman's correlation coefficient ($r = .28$, $p < .01$) was found for child and adult sexual abuse.

Using Wilk's Lambda, the combined pathologies were significantly related to broken home ($F = 2.12$, $df = 6/233$, $p = .05$) and there was a tendency towards a significant relationship between pathologies and family violence ($F = 1.83$, $df = 6/223$, $p = .10$), and child severe sexual abuse ($F = 1.83$, $df = 6/223$, $p = .10$). Results of the six Roy-Bargmann analyses are shown in Table 3. As can be seen, both broken home and dysfunctional family predicted significantly depression. Family violence contributed significantly to mental health and to alexithymia. Sexual abuse of all types was significantly related to borderline pathology, and child severe sexual abuse also contributed significantly to somatization.

DISCUSSION

We assessed, in non-patients, the extent of alexithymia, depression, somatization, borderline pathology and general mental and physical health. Average alexithymia scores in our participants were lower than scores indicated for other samples (35), their depression ratings

TABLE 3
Results of Roy-Bargmann Stepdown Analyses of the Six Dependent Variables/Individual Pathologies*

<i>Independent variable</i>	<i>Dependent variable</i>	<i>F</i>	<i>df</i>	<i>p</i>
Broken home	Depression	8.76	1/221	.003
Dysfunctional family	Depression	6.28	1/221	.01
Family violence	Alexithymia	6.04	1/218	.02
	Mental health	4.64	1/221	.03
Child sexual abuse	Borderline pathology	4.43	1/221	.04
Child severe sexual abuse	Somatization	5.09	1/220	.03
	Borderline pathology	4.32	1/221	.04
Adult sexual abuse	Borderline pathology	4.90	1/221	.03

*only significant results ($p < .05$) are reported.

corresponded closely to general population ratings reported by Salokangas et al. (36). Compared with American and English normative data (37), our participants scored higher on physical and mental summary SF-36 scales. All these data confirm that our participants represented a quite healthy sample. The frequency of child sexual and child severe sexual abuse indicated by our probands with 11% and 5% is quite comparable with population data from USA (38), Switzerland (39) and Sweden (40). There is a lack of consensus regarding the true frequency of childhood sexual abuse (41); it is even more difficult to obtain reliable data for other kind of traumatic experiences. Nevertheless, our 8% frequency of family violence corresponds to 8% of physical abuse indicated by Diaz et al. (42) and it approximates the 5.5% prevalence of having been often slapped or spanked during childhood (43). Interesting enough, in our sample, except for adult sexual abuse there were no significant differences between both sexes regarding the frequency of different traumatic experiences. Male sex does not exclude the risk for early trauma including sexual assault and its long-term consequences (44).

Traumatic etiology has been implied in all conditions we studied and we tested several trauma variables as their possible antecedents. Our hypothesis of different trauma experiences contributing in variable extent to different pathologies could be confirmed. Whereas no trauma variable could be identified as an possible antecedent of physical health, sexual abuse in childhood and adulthood was found to be significantly associated with borderline pathology and severe child sexual abuse with somatization. Broken home and dysfunctional family seem to make a

significant contribution to depression, family violence to alexithymia and overall mental health.

Childhood abuse and childhood sexual abuse were found to be associated with alexithymia (2,3) and higher alexithymia scores were found in rape victims with and without PTSD (45). In our sample of young non-patients alexithymia was found to be associated with family violence but not with sexual abuse. The lack of the association between alexithymia and sexual abuse could be due to the fact that we controlled for borderline pathology. Alexithymia was correlated relatively strongly with borderline pathology, and the latter was found to be associated with sexual abuse.

History of childhood sexual and physical abuse has been said to be associated with a higher risk for depression, not only in women but also in men (46,47). In a community sample, childhood abuse was associated with a chronic or recurrent depression but not with single short depressive episodes (48). In our study, depression has been found to depend on broken home and dysfunctional family, not on child abuse. Nevertheless, sexual and physical abuse were found to be associated with emotionally disturbed parenting (7) and our result could indicate that disturbed parenting has more impact than the abuse itself. Correspondingly, adult depression was more strongly connected with early familial factors than with early sexual abuse (39). The importance of broken home itself for depression has been known for long (49). There is an association between interpersonal loss and depression (50) and an early loss (broken home) will sensitize for a future one.

Self-reported childhood abuse was found to be followed by greater somatization in young subjects of both sexes (7,51) and childhood sexual abuse predicted somatization in different, mainly female clinical and non-clinical samples (6,52–54). More severe abuse correlated with higher level of somatization (55). All these results are in full agreement with our findings indicating a significant association between child severe sexual abuse and somatization in a young, quite healthy non-patient sample.

Young female patients with history of sexual and physical abuse were more likely to fulfill the criteria for borderline disorder (56) and child sexual abuse turned out to be a risk factor most strongly discriminating between borderline and non-borderline personality disorders in men and in women (57,58). The significant association between child sexual abuse and borderline pathology has repeatedly been demonstrated (31,59,60). Quite in correspondence with these findings, child sexual abuse and child severe sexual abuse appeared as variables predicting borderline pathology in our study. Beyond that, adult sexual abuse also

appeared to be associated with borderline pathology; both child and adult sexual abuse were correlated with each other in our sample and revictimization in adulthood is a frequent sequel of child sexual abuse (61). It has been argued that inability to modulate emotions as a consequence of trauma results in a range of borderline-typical behaviors aiming, in fact, at self-soothing (62). Other authors stressed the interpersonal sensitivity as the mediator between child sexual abuse and borderline pathology (63).

In our study, none of the trauma variables appeared as a predictor of physical health, probably due to a healthy status of our probands, evidenced by their relatively high SF-36 physical summary scale scores. Family violence, but not sexual abuse appeared as a variable predicting quality of mental health. In the study by Dickinson et al. (17), history of sexual abuse predicted impairment of SF-36 mental health; however, sexual abuse was the only trauma variable explored. A link has been claimed to exist between prior exposure to a wide range of traumatic events and subsequent physical health (12). No such link could be identified in our study, however, only a restricted range of mainly early traumatic events was considered.

This study was carried out on a non-patient sample in which we did not expect any particular pathology to prevail. We found significant relationships between individual traumatic experiences and different pathologies. Especially, we confirmed depressive pathology to be significantly associated with traumatic experiences of dysfunctional and broken family and borderline pathology to be significantly associated with trauma of sexual abuse respectively. These associations were mostly demonstrated in clinical samples; confirming them in non-patients underlines their validity. Even though we controlled for the overlaps of dependent variables and our results are in a good agreement with those reported in the literature, we must be careful in lending an appropriate weight to our findings: A very healthy, probably not representative sample was investigated, an adjusted self-report format of the Structured Interview for Trauma Study was used, and the frequency of the individual trauma experiences was relatively low; it did not exceed 13% except for broken home.

CONCLUSIONS

Our data confirm that traumatic experiences are associated with the majority of the conditions we studied including depression, somatization, borderline pathology and overall quality of mental health. Allowing

for the overlap between these pathologies (most of them are intercorrelated with each other) we tested their dependence upon the individual trauma variables. Our results demonstrate that there is some specificity in the relationship between individual traumatic experiences and individual pathologies; in other words, they demonstrate that individual conditions depend on different kind of trauma. Thus, they question the purported role of child abuse and, especially, of child sexual abuse in all these conditions.

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